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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/572,673

03/20/2006

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EXAMINER

DIAO, M BAYE

ART UNIT

PAPER NUMBER

2838

MAIL DATE

DELIVERY MODE

10/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/572,673

Applicant(s)

HARA ET AL.

Examiner

M'baye Diao

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03/20/2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>03/20/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) filed on 03/20/2006 has been considered and placed of record. An initialed copy is attached herewith.

Specification

3. The disclosure should be carefully reviewed to ensure that any and all grammatical, idiomatic, and spelling or other minor errors are corrected.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show reference numerals 15 as described in the specification page 1, line 25. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several

views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1- 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Sawa et al., (Sawa) US PAT 6,351,397.**

7. As per claim 1, Sawa et al. disclose (abstract; col. 2, lines 35+; col. 5, lines 29+; cols. 6 -7; col.8, lines 1-60) and show in Figs. 1 - 6:

a PWM cycloconverter including an AC power source (1) in which phases (r,s,t) are connected directly (via switches (3) to (20)) to phases (u,v,w) of the output side thereof by means of a bi-directional switch (see col. 2, lines 44-55) having self-arc-extinguishing capability (see col. 5, lines 33-47), wherein an AC power source (1)

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voltage is PWM-controlled in response to an output voltage(voltage at terminal (45), see Fig. 2) command to output variable voltage having variable frequency,

the PWM cycloconverter comprising:

an input current detecting means ((31) to (36))for detecting one or more

input current of the PWM cycloconverter; and

a PWM converter connected to a DC voltage means (V_{cc})(see Fig. 2), wherein an output unit of the PWM converter is connected to a place (via controller (23) and power supply voltage detection section (22)) before an input filter (2) of the PWM cycloconverter to keep down resonance of the input filter (2) on the basis of an input current signal (current flowing into diode (41))(see col. 6, lines 14-15) detected by means of the input current detecting means ((31) to (36)).

Accordingly, claim 1 is anticipated.

As per claim 2, Sawa et al. disclose the limitation of claim 1 as discussed above.

Sawa further discloses (see Fig. 5) the PWM further comprising:

one or more voltage clamping device (113) provided with a diode rectifier (111) connected to an input terminal of a semiconductor device for electric power of the PWM cycloconverter and with a smoothing capacitor (116); and

a voltage detecting device (117)for detecting voltage at the both ends of the smoothing capacitor (116), wherein the capacitor (116) for clamping voltage is used for the DC voltage means (rectification bridges (111),(112)).

Accordingly, claim 2 is anticipated.

As per claim 3, Sawa et al. disclose the PWM cycloconverter according to Claim 1, further comprising:
a snubber (110) formed from a diode (diode in (113)) connected to an input terminal (gate) of a semiconductor device (118) for electric power of the PWM cycloconverter and from a capacitor (116); and
a snubber voltage detecting device (117) for detecting voltage at the both ends of the smoothing capacitor (116) connected to the snubber (113, 114), wherein the capacitor (116) for the snubber (110) is used for the DC voltage means (rectification bridges (111), (112)).

Accordingly, claim 3 is anticipated.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related apparatus.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to M'baye Diao whose telephone number is 571-272-9748. The examiner can normally be reached on 8:30-5:00; First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on Monday through Friday at 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M'baye Diao
Examiner
Art Unit 2838

M.D


BAO Q. VU
PRIMARY EXAMINER